Spring 2011

CEG 403/603-01: Personal Area Networks

Yong Pei
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CEG 403/603 Personal Area Networks

4 Credits

Syllabus

Time/Place: Lecture: 4:10 – 5:25 PM, Tu. & Th., RC 406

Instructor: Dr. Yong Pei, 489 Joshi Research Center
Tel. 937-775-5111, Email: yong.pei@wright.edu
Office Hours: 2:00-4:00pm,Friday

Prerequisites: CEG402/602 (or equivalent)

Recommended Textbooks:

- Yu-Kwong Kwok and Vincent Lau, "Wireless Internet and Mobile Computing", Wiley Interscience, ISBN 978-0471-67968-4.
- James F. Kurose and Keith W. Ross, *Computer Networking: A top down approach featuring the Internet*, 5th edition, Addison-Wesley, ISBN: 0-13-607967-9, 2009.

Supplemental Readings:

- Recent journal and conference papers on personal area networks and applications.
- Lecture slides will be posted through WebCT.

References:

1. T.S. Rappaport, "Wireless Communications: Principle and Practice", 2nd Edition, Prentice Hall, 2002.
2. Andrew Tanenbaum, *Computer Networks*, Prentice Hall, 1997.

Course Webpage: Through Pilot.

Course Objective:

Increasingly, people, computers and microelectronic devices are being linked together to bring to life the communications mantra: anybody, anything, anytime, anywhere. Wireless Personal and Local Area Networks are an essential part of the complex puzzle that will solve the problem of ultimate connectivity. Understanding wireless Personal Area Networks (WPANs) is, in itself, a problem due to the fact that there are many technologies and products available, the market has not yet been consolidated, and progress and technological innovation is non-stop. However, it is essential to present students a systematic view of the existing WPAN technologies and their advancements. In this course we will provide an introduction to the concepts, architecture, design, and performance evaluation of personal area networks design principle, protocols and applications. At the conclusion of this course the student will have an understanding of these principles and be capable of implementing network protocols and applications for personal pervasive systems.

Learning Goals:
The aim of this course is to give an introduction to wireless Personal Area Networks (WPANs) and cover leading edge topics in WPANs, including (but not limited to) the networking architectures and protocol design and development, resource management, middleware and agent technologies, safety, security and compatibility and performance analysis.

Grading:

Pilot Projects = 20%
Midterm Exam = 30%;
Final Exam = 30%;
Course Design Project = 20%.

Lectures:

The following ***tentative*** schedule defines in greater details what material is covered in the course and when it is covered. (Chapters shown below refer to Kwok's book.)

Week	Reading	Contents
1	Chapter 11 and 12 Lecture Slides	Welcome and introduction WPAN technologies, issues and challenges
2	Lecture Slides	WPAN models and architectures
3, 4	Chapter 16, Lecture Slides	Wireless Internet Challenges and Wireless TCPs
5	Lecture Slides Chapter 9	WPAN MAC **Midterm Exam**
6,7	Chapter 9	Cellular Technologies, IEEE 802.11x WLAN
7, 8	Chapter 10	Bluetooth technology
9	Chapter 12	PAN middlewares and agent architecture
10	Chapter 15	WPAN application protocols and application design **Final Exam**
		Course Project Presentations